

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: GUERIN-MARCHAND, Claudine
DRUILHE, Pierre
- (ii) TITLE OF INVENTION: PEPTIDE SEQUENCES SPECIFIC FOR THE
HEPATIC STAGES OF P. FALCIPARUM BEARING EPITOPE CAPABLE
OF STIMULATING THE T LYMPHOCYTES
- (iii) NUMBER OF SEQUENCES: 46
- (iv) CORRESPONDENCE ADDRESS:
 - (A) ADDRESSEE: Burns, Doane, Swecker & Mathis
 - (B) STREET: P.O. Box 1404
 - (C) CITY: Alexandria
 - (D) STATE: Virginia
 - (E) COUNTRY: United States
 - (F) ZIP: 22313-1404
- (v) COMPUTER READABLE FORM:
 - (A) MEDIUM TYPE: Floppy disk
 - (B) COMPUTER: IBM PC compatible
 - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
 - (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
 - (A) APPLICATION NUMBER: US 08/098,327
 - (B) FILING DATE: 24-NOV-1993
 - (C) CLASSIFICATION:
- (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: FR 91 01286
 - (B) FILING DATE: 05-FEB-1991
- (viii) ATTORNEY/AGENT INFORMATION:
 - (A) NAME: McGowan, Malcolm K.
 - (B) REGISTRATION NUMBER: 39,300
 - (C) REFERENCE/DOCKET NUMBER: 010830-045
- (ix) TELECOMMUNICATION INFORMATION:
 - (A) TELEPHONE: (703) 836-6620
 - (B) TELEFAX: (703) 836-2021

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide

- (ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 8
 (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is Glu or Gly."
- (x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Leu Ala Lys Glu Lys Leu Gln Xaa Gln Gln Ser Asp Leu Glu Gln Glu
 1 5 10 15

Arg

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide
- (ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 1
 (D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is Ser or Arg."
- (ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 6
 (D) OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is Glu or Asp."
- (ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 8
 (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is Arg or Leu."
- (ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 15
 (D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa is Glu or Gly."
- (x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln
 1 5 10 15

Gln

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

- (ix) FEATURE:
- (A) NAME/KEY: Peptide
 - (B) LOCATION: 2
 - (D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is Ser or Arg."

- (ix) FEATURE:
- (A) NAME/KEY: Peptide
 - (B) LOCATION: 7
 - (D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is Glu or Asp."

- (ix) FEATURE:
- (A) NAME/KEY: Peptide
 - (B) LOCATION: 9
 - (D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is Arg or Leu."

- (ix) FEATURE:
- (A) NAME/KEY: Peptide
 - (B) LOCATION: 16
 - (D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa is Glu or Gly."

- (x) PUBLICATION INFORMATION:
- (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa
 1 5 10 15

Gln

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 3

(D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is Ser or Arg."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 8

(D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is Glu or Asp."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 10

(D) OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa is Arg or Leu."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 17

(D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa is Glu or Gly."

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln
1 5 10 15

Xaa

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1

(D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is Glu or Gly."

(ix) FEATURE:

(A) NAME/KEY: Peptide
(B) LOCATION: 4
(D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is Ser or Arg."

(ix) FEATURE:

(A) NAME/KEY: Peptide
(B) LOCATION: 9
(D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is Glu or Asp."

(ix) FEATURE:

(A) NAME/KEY: Peptide
(B) LOCATION: 11
(D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa is Arg or Leu."

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu
1 5 10 15

Gln

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 2
(D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is Glu or Gly."

(ix) FEATURE:

(A) NAME/KEY: Peptide
(B) LOCATION: 5
(D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is Ser or Arg."

(ix) FEATURE:

(A) NAME/KEY: Peptide
(B) LOCATION: 10
(D) OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa is Glu or Asp."

(ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 12
(D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa is Arg or Leu."

(x) PUBLICATION INFORMATION:
(H) DOCUMENT NUMBER: WO 92/13884
(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys
1 5 10 15

Leu

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 3
(D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is Glu or Gly."

(ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 6
(D) OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is Ser or Arg."

(ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 11
(D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa is Glu or Asp."

(ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 13
(D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa is Arg or Leu."

(x) PUBLICATION INFORMATION:
(H) DOCUMENT NUMBER: WO 92/13884
(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu
 1 5 10 15

Lys

(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: peptide

- (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 4
- (D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is Glu or Gly."

- (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 7
- (D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is Ser or Arg."

- (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 12
- (D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa is Glu or Asp."

- (ix) FEATURE:

- (A) NAME/KEY: Peptide
- (B) LOCATION: 14
- (D) OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa is Arg or Leu."

- (x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa Ala Lys
 1 5 10 15

Glu

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 5

(D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is Glu or Gly."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 8

(D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is Ser or Arg."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 13

(D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa is Glu or Asp."

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 15

(D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa is Arg or Leu."

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Glu	Lys	Leu	Gln	Xaa	Gln	Gln	Xaa	Asp	Leu	Glu	Gln	Xaa	Arg	Xaa	Ala
1				5					10				15		

Lys

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 17 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 6

(D) OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is Glu or Gly."

(ix) FEATURE:

(A) NAME/KEY: Peptide
 (B) LOCATION: 9
 (D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is Ser or Arg."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 14
 (D) OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa is Glu or Asp."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 16
 (D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa is Arg or Leu."

(x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa Arg Xaa
 1 5 10 15

Ala

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 7
 (D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is Glu or Gly."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 10
 (D) OTHER INFORMATION: /note= "Amino Acid 10 wherein Xaa is Ser or Arg."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 15
 (D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa is Glu or Asp."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 17
 (D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa is Arg or Leu."

(x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Ala Lys Glu Lys Leu Gln Gln Xaa Asp Leu Glu Gln Xaa Arg
 1 5 10 15
 Xaa

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 1
 (D) OTHER INFORMATION: /note= "Amino Acid 1 wherein Xaa is Arg or Leu."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 8
 (D) OTHER INFORMATION: /note= "Amino Acid 8 wherein Xaa is Glu or Gly."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 11
 (D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa is Ser or Arg."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 16
 (D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa is Glu or Asp."

(x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln Xaa
 1 5 10 15

Arg

(2) INFORMATION FOR SEQ ID NO:13:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide
- (ix) FEATURE:
 - (A) NAME/KEY: Peptide
 - (B) LOCATION: 2
 - (D) OTHER INFORMATION: /note= "Amino Acid 2 wherein Xaa is Arg or Leu."
- (ix) FEATURE:
 - (A) NAME/KEY: Peptide
 - (B) LOCATION: 9
 - (D) OTHER INFORMATION: /note= "Amino Acid 9 wherein Xaa is Glu or Gly."
- (ix) FEATURE:
 - (A) NAME/KEY: Peptide
 - (B) LOCATION: 12
 - (D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa is Ser or Arg."
- (ix) FEATURE:
 - (A) NAME/KEY: Peptide
 - (B) LOCATION: 17
 - (D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa is Glu or Asp."
- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu Glu Gln
 1 5 10 15

Xaa

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single

- (A) NAME/KEY: Peptide
(B) LOCATION: 4
(D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is Arg or Leu."

- (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 11
(D) OTHER INFORMATION: /note= "Amino Acid 11 wherein Xaa is Glu or Gly."

- (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 14
(D) OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa is Ser or Arg."

- (x) PUBLICATION INFORMATION:
(H) DOCUMENT NUMBER: WO 92/13884
(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp Leu
1 5 10 15
Glu

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 18 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

- (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 3
(D) OTHER INFORMATION: /note= "Amino Acid 3 wherein Xaa is Glu or Asp."

- (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 5
(D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is Arg or Leu."

- (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 12
(D) OTHER INFORMATION: /note= "Amino Acid 12 wherein Xaa is Glu or Gly."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 15
 (D) OTHER INFORMATION: /note= "Amino Acid 15 wherein Xaa is Ser or Arg."

(x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa Asp
 1 5 10 15
 Leu

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 17 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 4
 (D) OTHER INFORMATION: /note= "Amino Acid 4 wherein Xaa is Glu or Asp."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 6
 (D) OTHER INFORMATION: /note= "Amino Acid 6 wherein Xaa is Arg or Leu."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 13
 (D) OTHER INFORMATION: /note= "Amino Acid 13 wherein Xaa is Glu or Gly."

(ix) FEATURE:
 (A) NAME/KEY: Peptide
 (B) LOCATION: 16
 (D) OTHER INFORMATION: /note= "Amino Acid 16 wherein Xaa is Ser or Arg."

(x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln Xaa
 1 5 10 15

Asp

(2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: peptide

- (ix) FEATURE:
 - (A) NAME/KEY: Peptide
 - (B) LOCATION: 5
 - (D) OTHER INFORMATION: /note= "Amino Acid 5 wherein Xaa is Glu or Asp."

- (ix) FEATURE:
 - (A) NAME/KEY: Peptide
 - (B) LOCATION: 7
 - (D) OTHER INFORMATION: /note= "Amino Acid 7 wherein Xaa is Arg or Leu."

- (ix) FEATURE:
 - (A) NAME/KEY: Peptide
 - (B) LOCATION: 14
 - (D) OTHER INFORMATION: /note= "Amino Acid 14 wherein Xaa is Glu or Gly."

- (ix) FEATURE:
 - (A) NAME/KEY: Peptide
 - (B) LOCATION: 17
 - (D) OTHER INFORMATION: /note= "Amino Acid 17 wherein Xaa is Ser or Arg."

- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Asp Leu Glu Gln Xaa Arg Xaa Ala Lys Glu Lys Leu Gln Xaa Gln Gln
 1 5 10 15

Xaa

(2) INFORMATION FOR SEQ ID NO:19:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 107 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His Gly
 1 5 10 15

Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro Ala Ile
 20 25 30

Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr Ile Pro His Gln Ser
 35 40 45

Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg Asp Ser Lys Glu Ile
 50 55 60

Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile Thr Thr Asn Val Glu
 65 70 75 80

Gly Arg Arg Asp Ile His Lys Gly His Leu Glu Glu Lys Lys Asp Gly
 .85 90 95

Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser
 100 105

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 117 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Leu Gln Glu Gln Gln Arg Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys
 1 5 10 15

Lys Asn Leu Glu Arg Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp
 20 25 30

Leu Tyr Gly Arg Leu Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn
 35 40 45

Glu Arg Gly Tyr Tyr Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn
 50 55 60

Arg Gly Asn Ser Arg Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr
 65 70 75 80

Asn Arg Glu Ser Ile Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His
 85 90 95

Lys Gly His Leu Glu Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln
 100 105 110

Lys Glu Asp Lys Ser
 115

(2) INFORMATION FOR SEQ ID NO:21:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 27 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: peptide

- (x) PUBLICATION INFORMATION:
- (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His Gly Asp Ile Leu
 1 5 10 15

Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro
 20 25

(2) INFORMATION FOR SEQ ID NO:22:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 24 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: peptide

- (x) PUBLICATION INFORMATION:
- (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Arg Asp Leu Glu
 1 5 10 15

Gln Arg Lys Ala Asp Thr Lys Lys
20

(2) INFORMATION FOR SEQ ID NO:23:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 31 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

- (x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Asn	Ser	Arg	Asp	Ser	Lys	Glu	Ile	Ser	Ile	Ile	Glu	Lys	Thr	Asn	Arg
1				5				10					15		
Glu	Ser	Ile	Thr	Thr	Asn	Val	Glu	Gly	Arg	Arg	Asp	Ile	His	Lys	
				20				25				30			

(2) INFORMATION FOR SEQ ID NO:24:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 151 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

- (x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Arg	Asp	Glu	Leu	Phe	Asn	Glu	Leu	Leu	Asn	Ser	Val	Asp	Val	Asn	Gly
1				5				10					15		
Glu	Val	Lys	Glu	Asn	Ile	Leu	Glu	Glu	Ser	Gln	Val	Asn	Asp	Asp	Ile
				20				25				30			
Phe	Asn	Ser	Leu	Val	Lys	Ser	Val	Gln	Gln	Glu	Gln	Gln	His	Asn	Val
				35			40				45				
Glu	Glu	Lys	Val	Glu	Glu	Ser	Val	Glu	Glu	Asn	Asp	Glu	Glu	Ser	Val
	50				55					60					
Glu	Glu	Asn	Val	Glu	Glu	Asn	Val	Glu	Glu	Asn	Asp	Asp	Gly	Ser	Val
	65				70				75				80		

Ala Ser Ser Val Glu Glu Ser Ile Ala Ser Ser Val Asp Glu Ser Ile
 85 90 95

Asp Ser Ser Ile Glu Glu Asn Val Ala Pro Thr Val Glu Glu Ile Val
 100 105 110

Ala Pro Thr Val Glu Glu Ile Val Ala Pro Ser Val Val Glu Lys Cys
 115 120 125

Ala Pro Ser Val Glu Glu Ser Val Ala Pro Ser Val Glu Glu Ser Val
 130 135 140

Ala Glu Met Leu Lys Glu Arg
 145 150

(2) INFORMATION FOR SEQ ID NO:25:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 47 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: peptide

- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Arg Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly
 1 5 10 15

Glu Val Lys Glu Asn Ile Leu Glu Glu Ser Gln Val Asn Asp Asp Ile
 20 25 30

Phe Asn Ser Leu Val Lys Ser Val Gln Gln Glu Gln His Asn
 35 40 45

(2) INFORMATION FOR SEQ ID NO:26:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 26 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: peptide

- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Asp Glu Leu Phe Asn Glu Leu Leu Asn Ser Val Asp Val Asn Gly Glu
 1 5 10 15

Val Lys Glu Asn Ile Leu Glu Glu Ser Gln
 20 25

(2) INFORMATION FOR SEQ ID NO:27:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Leu Glu Glu Ser Gln Val Asn Asp Asp Ile Phe Ser Asn Ser Leu Val
 1 5 10 15

Lys Ser Val Gln Gln Glu Gln Gln His Asn Val
 20 25

(2) INFORMATION FOR SEQ ID NO:28:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 27 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Val Glu Lys Cys Ala Pro Ser Val Glu Glu Ser Val Ala Pro Ser Val
 1 5 10 15

Glu Glu Ser Val Ala Glu Met Leu Lys Glu Arg
 20 25

(2) INFORMATION FOR SEQ ID NO:29:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

TGTTCTAGA TCGCTTT

17

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 15 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

AAAAGAGATA AATCT

15

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 316 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln
 1 5 10 15

Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu Lys Leu Gln Glu
 20 25 30

Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln
 35 40 45

Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu
 50 55 60

Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys
 65 70 75 80

Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu
 85 90 95

Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys
 100 105 110

Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala
 115 120 125

Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg
 130 135 140

Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg
 145 150 155 160

Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu
 165 170 175

Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln
 180 185 190

Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Arg Asp Leu Glu
 195 200 205

Gln Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg Lys Lys Glu His
 210 215 220

Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu Glu Ile Pro Ala
 225 230 235 240

Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr Ile Pro His Gln
 245 250 255

Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg Asp Ser Lys Glu
 260 265 270

Ile Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile Thr Thr Asn Val
 275 280 285

Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu Glu Lys Lys Asp
 290 295 300

Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser
 305 310 315

(2) INFORMATION FOR SEQ ID NO:32:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 950 base pairs
 - (B) TYPE: nucleic acid

- (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

- (x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

AAAGCGATCT AGAACAAAGAG AGACGTGCTA AAGAAAAGTT GCAAGAACAA CAAAGCGATT	60
TAGAACAAAGA TAGACTTGCT AAAGAAAAAGT TACAAGAGCA GCAAAGCGAT TTAGAACAAAG	120
AGAGACTTGCA TAAAGAAAAG TTGCAAGAAC AACAAAGCGA TCTAGAACAA GAGAGACGTG	180
CTAAAGAAAA GTTGCAAGAA CAACAAAGCG ATTCTAGAACAA AGAGAGACGT GCTAAAGAAA	240
AGTTGCAAGA ACAACAAAGC GATTTAGAAC AAGATAGACT TGCTAAAGAA AAGTTACAAAG	300
AGCACCAAG CGATTTAGAA CAACAGAGAC GTGCTAAAGA AAAGTTGCAA GAACAAACAAA	360
GCGATTTAGA ACAAGAGAGA CGTGCTAAAG AAAAGTTGCA AGAACAAACAA AGCGATTAG	420
AACAAAGAGAG ACTTGCTAAA GAAAAGTTGCA AAGAACAAACA AAGCGATTAA GAACAAAGAGA	480
GACGTGCTAA AGAAAAGTTG CAAGAACAAAC AAAGCGATT AGAACAAAGAG AGACGTGCTA	540
AGAAAAGTT GCAAGAACAA CAAAGCGATT TAGAACAAAGA GAGACGTGCT AAAGAAAAGT	600
TGCAAGAGCA GCAAAGAGAT TTAGAACAAA GGAAGGCTGA TACGAAAAAA ATTTAGAAA	660
GAAAAAAAGGA ACATGGAGAT ATATTAGCG AGGATTATAA TGTCGTTTA GAAATACAG	720
CTATAGAACT TCCATCAGAA AATGAACGTG GATATTATAT ACCACATCAA TCTTCCTTAC	780
CTCAGGACAA CAGAGGGAAAT AGTAGAGATT CCAAGGAAAT ATCTATAATA GAAAAAAACAA	840
ATAGAGAACATC TATTACAAACAA AATGTTGAAG GACGAAGGGAA TATACATAAA GGACATCTTG	900
AAGAAAAGAA AGATGGTTCA ATAAAACCAG AACAAAAAGA AGATAAATCT	950

(2) INFORMATION FOR SEQ ID NO:33:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 464 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

- (x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

GAATTCCGTG ATGAACTTT TAATGAATTA TTAAATAGTG TAGATGTTAA TGGAGAAGTA	60
AAAGAAAATA TTTTGAGGA AAGTCAAGTT AATGACGATA TTTTTAATAG TTTAGTAAAA	120
AGTGTTCAAC AAGAACAAACA ACACAATGTT GAAGAAAAAG TTGAAGAAAG TGTAGAAGAA	180
AATGACGAAG AAAGTGTAGA AGAAAATGTA GAAGAAAATG TAGAAGAAAA TGACGACGGA	240
AGTGTAGCCT CAAGTGTGA AGAAAAGTATA GCITCAAGTG TTGATGAAAG TATAGATTCA	300
AGTATTGAAAG AAAATGTAGC TCCAACTGTT GAAGAAAATCG TAGCTCCAAC TGTTGAAGAA	360
ATTGTAGCTC CAAGTGTGT AGAAAAGTGT GCTCCAAGTG TTGAAGAAA TGTAGCTCCA	420
AGTGTGAAG AAAGTGTAGC TGAAATGTTG AAGGAAAGGA ATTCA	464

(2) INFORMATION FOR SEQ ID NO:34:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 988 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

AAAGTATAACA TCTTCCTTCT TTACTTCTTA AAATGAAACA TATTTGTCAC ATATCATTTC	60
ACTTTATCCT TGTTAATTTC TTGATATTTC ATATAAATGG AAAGATAATA AAGAATTCTG	120
AAAAAGATGA AACATCAAAAA TCTAACTTGA GAAGTGGTTC TTCAAATTCT AGGAATCGAA	180
TAAATGAGGA AAATCACGAG AAGAAACACG TTTTATCTCA TAATTCATAT GAGAAAACATA	240
AAAATAATGA AAATAATAAA TTTTCGATA AGGATAAAAGA GTTAAACGATG TCTAATGTAA	300
AAAATGTGTC ACAAAACAAAT TTCAAAAGTC TTTTAAGAAA TCTTGGTGTTC TCAGAGAATA	360
TATTCTTAA AGAAAATAAA TAAATAAGG AAGGGAAATT AATTGAACAC ATAATAAATG	420
ATGATGACGA TAAAAAAAAA TATATTAAGG GGCAAGACGA AAACAGACAA GAAGATCTTG	480
AAGAAAAAAGC AGCTAAAGAA AACTTACAGG GGCAACAAAG CGATTCAGAA CAAGAGAGAC	540
GTGCTAAAGA AAAGTTGCAA GAACAAACAAA GCGATTTAGA ACAAGAGAGA CTTGCTAAAG	600
AAAAGTTGCA AGAACAAACAA AGCGATTTAG AACAAAGAGAG ACGTGCTAAA GAAAAGTTGC	660

AAGAACAAACA AAGCGATTTA GAACAAAGAGA GACTTGCTAA AGAAAAGTTG CAAGAACAAAC	720
AAAGCGATTT AGAACAAAGAG AGACGTGCTA AAGAAAAGTT GCAAGAACAA CAAAGCGATT	780
TAGAACAAAGA GAGACGTGCT AAAGAAAAGT TCCAAGAACAA ACAAAAGCGAT TTAGAACAAAG	840
AGAGACTTGC TAAAGAAAAG TTACAAGAGC AGCAAAGCGA TTTAGAACAA GATAGACTTG	900
CTAAAGAAAA GTTCCAAGAA CAACAAAGCG ATTAGAACAA AGAGAGACGT GCTAAAGAAA	960
GGTTGCAAGA ACAACAAAGC GATTAGA	988

(2) INFORMATION FOR SEQ ID NO:35:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

ATGAAACATA TT	12
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(2) INFORMATION FOR SEQ ID NO:36:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

AAGCGATTTA GA	12
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(2) INFORMATION FOR SEQ ID NO:37:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 954 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..954

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

ATG AAA CAT ATT TTG TAC ATA TCA TTT TAC TTT ATC CTT GTT AAT TTA Met Lys His Ile Leu Tyr Ile Ser Phe Tyr Phe Ile Leu Val Asn Leu 1 5 10 15	48
TTG ATA TTT CAT ATA AAT GGA AAG ATA ATA AAG AAT TCT GAA AAA GAT Leu Ile Phe His Ile Asn Gly Lys Ile Lys Asn Ser Glu Lys Asp 20 25 30	96
GAA ATC ATA AAA TCT AAC TTG AGA AGT GGT TCT TCA AAT TCT AGG AAT Glu Ile Ile Lys Ser Asn Leu Arg Ser Gly Ser Ser Asn Ser Arg Asn 35 40 45	144
CGA ATA AAT GAG GAA AAT CAC GAG AAG AAA CAC GTT TTA TCT CAT AAT Arg Ile Asn Glu Glu Asn His Glu Lys Lys His Val Leu Ser His Asn 50 55 60	192
TCA TAT GAG AAA ACT AAA AAT AAT GAA AAT AAT AAA TTT TTC GAT AAG Ser Tyr Glu Lys Thr Lys Asn Asn Glu Asn Lys Phe Phe Asp Lys 65 70 75 80	240
GAT AAA GAG TTA ACG ATG TCT AAT GTA AAA AAT GTG TCA CAA ACA AAT Asp Lys Glu Leu Thr Met Ser Asn Val Lys Asn Val Ser Gln Thr Asn 85 90 95	288
TTC AAA AGT CTT TTA AGA AAT CTT GGT GTT TCA GAG AAT ATA TTC CTT Phe Lys Ser Leu Leu Arg Asn Leu Gly Val Ser Glu Asn Ile Phe Leu 100 105 110	336
AAA GAA AAT AAA TTA AAT AAG GAA GGG AAA TTA ATT GAA CAC ATA ATA Lys Glu Asn Lys Leu Asn Lys Glu Gly Lys Leu Ile Glu His Ile Ile 115 120 125	384
AAT GAT GAT GAC GAT AAA AAA AAA TAT ATT AAA CGG CAA GAC GAA AAC Asn Asp Asp Asp Asp Lys Lys Lys Tyr Ile Lys Gly Gln Asp Glu Asn 130 135 140	432
AGA CAA GAA GAT CTT GAA GAA AAA GCA GCT AAA GAA AAG TTA CAG GGG Arg Gln Glu Asp Leu Glu Glu Lys Ala Ala Lys Glu Lys Leu Gln Gly 145 150 155 160	480
CAA CAA AGC GAT TCA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA Gln Gln Ser Asp Ser Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln 165 170 175	528

GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA GAA AAG TTG Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys Glu Lys Leu 180 185 190	576
CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys 195 200 205	624
TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA GAA Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys Glu 210 215 220	672
AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT GCT AAA Lys Leu Gln Glu Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys 225 230 235 240	720
GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT GCT Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala 245 250 255	768
AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CTT Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu 260 265 270	816
GCT AAA GAA AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAT AGA Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg 275 280 285	864
CTT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu 290 295 300	912
AGA CGT GCT AAA GAA AGG TTG CAA GAA CAA CAA AGC GAT TTA Arg Arg Ala Lys Glu Arg Leu Gln Glu Gln Gln Ser Asp Leu 305 310 315	954

(2) INFORMATION FOR SEQ ID NO:38:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1493 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: DNA (genomic)

- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

CAAGAACAAAC AAAGCGATCT AGAACACAAGAG AGACGTGCTA AAGAAAAAGTT GCAAGAACAA CAAAGCGATT TAGAACAAAGA TAGACTTGCT AAAGAAAAAGT TACAAGAGCA GCAAAGCGAT	60
	120

TTAGAACAAAG AGAGACTTGC TAAGAAAAGT TGCAAGAAC ACAAAGCGAT CTAGAACAG	180
AGAGACGTGC TAAAGAAAAG TTGCAAGAAC AACAAGCGA TTTAGAACAA GAGAGACGTG	240
CTAAAGAAAA GTTCAAGAA CAACAAAGCG ATTAGAACAA AGATAGACTT GCTAAAGAAA	300
AGTTACAAAGA GCAGCAAAGC GATTAGAAC AAAGAGAGACG TGCTAAAGAA AACTTGCAAG	360
AACAACAAAG CGATTAGAA CAAGAGAGAC GTGCTAAAGAA AAGTTGCAAG AACAACAAAG	420
CGATTAGAA CAAGAGAGAC TTGCTAAAGA AAAGTTGCAA GAACAACAAA GCGATTAGA	480
ACAAGAGAGA CGTGTAAAG AAAAGTTGCA AGAACAAACAA AGCGATTAG AACAAAGAGAG	540
ACGTGCTAAAG AAAAGTTGCA AGAACAAACAA ACCGATTAG AACAAAGAGAG ACGTGCTAA	600
GAAAAGTGC AAGAGCAGCA AAGAGATTAA GAACAAAGGA AGGCTGATAAC GAAAAAAAT	660
TTAGAACAAAG AAAAGGAACA TGGAGATATA TTAGCAGAGG ATTTATATGG TCGTTTAGAA	720
ATACCAGCTA TAGAACCTTC ATCAGAAAAT GAACGTGGAT ATTATATACACATCAATCT	780
TCTTTACCTC AGGACACACAG AGGGAATAGT AGAGATTCCA AGGAAATATC TATAATAGAA	840
AAAACAAATA GAGAACATAT TACAAACAAAT GTTGAAGGAC GAAGGGATAT ACATAAAGGA	900
CATCTTGAAG AAAAGAAAAGA TGGTTCAATA AAACCGAACAC AAAAAGAAGA TAAATCTGCT	960
GACATACAAA ATCATACATT AGAGACAGTA AATATTTCTG ATGTTAATGA TTTTCAAATA	1020
AGTAAGTATG AGGATGAAAT AAGTGTGAA TATGACGATT CATTAAATAGA TGAAGAAGAA	1080
GATGATGAAG ACTTAGACGA ATTTAACGCT ATTGTGCAAT ATGACAATTTC CCAAGATGAA	1140
GAAAACATAG GAATTTATAA AGAACTAGAA GATTGATAG AGAAAATGA AAATTTAGAT	1200
GATTTAGATG AAGGAATAGA AAAATCATCA GAAGAATTAT CTGAAGAAAA AATAAAAAAA	1260
GGAAAGAAAAT ATGAAAAAAC AAAGGATAAT AATTTTAAAC CAAATGATAA AAGTTTGAT	1320
GATGAGCATA TTAAAAAATA TAAAAATGAT AAGCAGGTTA ATAAGGAAAA CGAAAAATTC	1380
ATAAAATCAT TGTTTCATAT ATTTGACGGA GACAATGAAA TTTTACAGAT CGTGGATGAG	1440
TTATCTGAAG ATATAACTAA ATATTTTATG AACTATAAA AGGTTATATAA TTT	1493

(2) INFORMATION FOR SEQ ID NO:39:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

CAAGAACAAAC AA

12

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 12 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

GGTTATATAT TT

12

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1482 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:
 (A) NAME/KEY: CDS
 (B) LOCATION: 1..1482

(x) PUBLICATION INFORMATION:
 (H) DOCUMENT NUMBER: WO 92/13884
 (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT AAA GAA AAG	48
Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys	
1 5 10 15	

TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA CTT GCT AAA GAA	96
Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu	
20 25 30	

AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA	144
Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys	

35

40

45

GAA AAG TTG CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala 50 55 60	192
AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg 65 70 75 80	240
GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg 85 90 95	288
CTT GCT AAA GAA AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu 100 105 110	336
AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln 115 120 125	384
GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu 130 135 140	432
CAA GAG AGA CTT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA Gln Glu Arg Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu 145 150 155 160	480
GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp 165 170 175	528
TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser 180 185 190	576
GAT TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAG CAG CAA Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln 195 200 205	624
AGA GAT TTA GAA CAA AGG AAG GCT GAT ACG AAA AAA AAT TTA GAA AGA Arg Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg 210 215 220	672
AAA AAG GAA CAT GGA GAT ATA TTA GCA GAG GAT TTA TAT GGT CGT TTA Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu 225 230 235 240	720
GAA ATA CCA GCT ATA GAA CTT CCA TCA GAA AAT GAA CGT GGA TAT TAT G' i Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr 245 250 255	768
ATA CCA CAT CAA TCT TCT TTA CCT CAG GAC AAC AGA GGG AAT AGT AGA Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg	816

260

265

270

GAT TCC AAG GAA ATA TCT ATA ATA GAA AAA ACA AAT AGA GAA TCT ATT Asp Ser Lys Glu Ile Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile 275	280	285	864
ACA ACA AAT GTT GAA GGA CGA AGG GAT ATA CAT AAA GGA CAT CTT GAA Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu 290	295	300	912
GAA AAG AAA GAT GGT TCA ATA AAA CCA GAA CAA AAA GAA GAT AAA TCT Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser 305	310	315	960
GCT GAC ATA CAA AAT CAT ACA TTA GAG ACA GTA AAT ATT TCT GAT GTT Ala Asp Ile Gln Asn His Thr Leu Glu Thr Val Asn Ile Ser Asp Val 325	330	335	1008
AAT GAT TTT CAA ATA AGT AAG TAT GAG GAT GAA ATA AGT GCT GAA TAT Asn Asp Phe Gln Ile Ser Lys Tyr Glu Asp Glu Ile Ser Ala Glu Tyr 340	345	350	1056
GAC GAT TCA TTA ATA GAT GAA GAA GAT GAT GAA GAC TTA GAC GAA Asp Asp Ser Leu Ile Asp Glu Glu Asp Asp Glu Asp Leu Asp Glu 355	360	365	1104
TTC AAG CCT ATT GTG CAA TAT GAC AAT TTC CAA GAT GAA GAA AAC ATA Phe Lys Pro Ile Val Gln Tyr Asp Asn Phe Gln Asp Glu Glu Asn Ile 370	375	380	1152
GGA ATT TAT AAA GAA CTA GAA GAT TTG ATA GAG AAA AAT GAA AAT TTA Gly Ile Tyr Lys Glu Leu Glu Asp Leu Ile Glu Lys Asn Glu Asn Leu 385	390	395	400
GAT GAT TTA GAT GAA GGA ATA GAA AAA TCA TCA GAA GAA TTA TCT GAA Asp Asp Leu Asp Glu Gly Ile Glu Lys Ser Ser Glu Glu Leu Ser Glu 405	410	415	1248
GAA AAA ATA AAA AAA GGA AAG AAA TAT GAA AAA ACA AAG GAT AAT AAT Glu Lys Ile Lys Lys Gly Lys Tyr Glu Lys Thr Lys Asp Asn Asn 420	425	430	1296
TTT AAA CCA AAT GAT AAA AGT TTG TAT GAT GAG CAT ATT AAA AAA TAT Phe Lys Pro Asn Asp Lys Ser Leu Tyr Asp Glu His Ile Lys Lys Tyr 435	440	445	1344
AAA AAT GAT AAG CAG GTT AAT AAG GAA AAG GAA AAA TTC ATA AAA TCA Lys Asn Asp Lys Gln Val Asn Lys Glu Lys Glu Lys Phe Ile Lys Ser 450	455	460	1392
TTG TTT CAT ATA TTT GAC GGA GAC AAT GAA ATT TTA CAG ATC GTG GAT Leu Phe His Ile Phe Asp Gly Asp Asn Glu Ile Leu Gln Ile Val Asp 465	470	475	1440
GAG TTA TCT GAA GAT ATA ACT AAA TAT TTT ATG AAA CTA TAA Glu Leu Ser Glu Asp Ile Thr Lys Tyr Phe Met Lys Leu			1482

(2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..12

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

AAG GTT ATA TAT
 Lys Val Ile Tyr

12

(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

CAAGAACAAAC AA

12

(2) INFORMATION FOR SEQ ID NO:44:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 12 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884

(J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

ATGAAACTAT AA

12

(2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1482 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..1482

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: WO 92/13884
- (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT AAA GAA AAG	48
Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys	
5 10 15	

TTC CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA CTT GCT AAA GAA	96
Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg Leu Ala Lys Glu	
20 25 30	

AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG AGA CTT GCT AAA	144
Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Leu Ala Lys	
35 40 45	

GAA AAG TTG CAA GAA CAA CAA AGC GAT CTA GAA CAA GAG AGA CGT GCT	192
Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg Ala	
50 55 60	

AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAG AGA CGT	240
Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu Arg Arg	
65 70 75 80	

GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA GAT AGA	288
Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Asp Arg	
85 90 95	

CTT GCT AAA GAA AAG TTA CAA GAG CAG CAA AGC GAT TTA GAA CAA GAG	336
Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln Glu	
100 105 110	

AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA CAA	384
Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu Gln	

115

120

125

GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA GAA Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu Glu 130	135	140	432
CAA GAG AGA CTT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT TTA Gln Glu Arg Leu Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp Leu 145	150	155	480
GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC GAT Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser Asp 165	170	175	528
TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAA CAA CAA AGC Leu Glu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser 180	185	190	576
GAT TTA GAA CAA GAG AGA CGT GCT AAA GAA AAG TTG CAA GAG CAG CAA Asp Leu Gln Glu Arg Arg Ala Lys Glu Lys Leu Gln Glu Gln Gln Ser 195	200	205	624
AGA GAT TTA GAA CAA AGG AAG GCT GAT ACG AAA AAA AAT TTA GAA AGA Arg Asp Leu Glu Gln Arg Lys Ala Asp Thr Lys Lys Asn Leu Glu Arg 210	215	220	672
AAA AAG GAA CAT GGA GAT ATA TTA GCA GAG GAT TTA TAT GGT CGT TTA Lys Lys Glu His Gly Asp Ile Leu Ala Glu Asp Leu Tyr Gly Arg Leu 225	230	235	720
GAA ATA CCA GCT ATA GAA CTT CCA TCA GAA AAT GAA CGT GGA TAT TAT Glu Ile Pro Ala Ile Glu Leu Pro Ser Glu Asn Glu Arg Gly Tyr Tyr 245	250	255	768
ATA CCA CAT CAA TCT TCT TTA CCT CAG GAC AAC AGA GGG AAT AGT AGA Ile Pro His Gln Ser Ser Leu Pro Gln Asp Asn Arg Gly Asn Ser Arg 260	265	270	816
GAT TCC AAG GAA ATG TCT ATA ATA GAA AAA ACA AAT AGA GAA TCT ATT Asp Ser Lys Glu Met Ser Ile Ile Glu Lys Thr Asn Arg Glu Ser Ile 275	280	285	864
ACA ACA AAT GTT GAA GGA CGA AGG GAT ATA CAT AAA GGA CAT CTT GAA Thr Thr Asn Val Glu Gly Arg Arg Asp Ile His Lys Gly His Leu Glu 290	295	300	912
GAA AAG AAA GAT GGT TCA ATA AAA CCA GAA CAA AAA GAA GAT AAA TCT Glu Lys Lys Asp Gly Ser Ile Lys Pro Glu Gln Lys Glu Asp Lys Ser 305	310	315	960
GCT GAC ATA CAA AAT CAT ACA TTA GAG ACA GTA AAT ATT TCT GAT GTT Ala Asp Ile Gln Asn His Thr Leu Glu Thr Val Asn Ile Ser Asp Val 325	330	335	1008
AAT GAT TTT CAA ATA AGT AAG TAT GAG GAT GAA ATA AGT GCT GAA TAT Asn Asp Phe Gln Ile Ser Lys Tyr Glu Asp Glu Ile Ser Ala Glu Tyr			1056

340

345

350

GAC GAT TCA TTA ATA GAT GAA GAA GAA GAT GAT GAA GAC TTA GAC GAA Asp Asp Ser Leu Ile Asp Glu Glu Glu Asp Asp Glu Asp Leu Asp Glu 355	360	365	1104
TTT AAG CCT ATT GTG CAA TAT GAC AAT TTC CAA GAT GAA GAA AAC ATA Phe Lys Pro Ile Val Gln Tyr Asp Asn Phe Gln Asp Glu Glu Asn Ile 370	375	380	1152
GGA ATT TAT AAA GAA CTA GAA GAT TTG ATA GAG AAA AAT GAA AAT TTA Gly Ile Tyr Lys Glu Leu Glu Asp Leu Ile Glu Lys Asn Glu Asn Leu 385	390	395	1200
GAT GAT TTA GAT GAA GGA ATA GAA AAA TCA TCA GAA GAA TTA TCT GAA Asp Asp Leu Asp Glu Gly Ile Glu Lys Ser Ser Glu Glu Leu Ser Glu 405	410	415	1248
GAA AAA ATA AAA AAA GGA AAG AAA TAT GAA AAA ACA AAG GAT AAT AAT Glu Lys Ile Lys Lys Gly Lys Tyr Glu Lys Thr Lys Asp Asn Asn 420	425	430	1296
TTT AAA CCA AAT GAT AAA AGT TTG TAT GAT GAG CAT ATT AAA AAA TAT Phe Lys Pro Asn Asp Lys Ser Leu Tyr Asp Glu His Ile Lys Lys Tyr 435	440	445	1344
AAA AAT GAT AAG CAG GTT AAT AAG GAA AAG GAA AAA TTC ATA AAA TCA Lys Asn Asp Lys Gln Val Asn Lys Glu Lys Glu Lys Phe Ile Lys Ser 450	455	460	1392
TTG TTT CAT ATA TTT GAC GGA GAC AAT GAA ATT TTA CAG ATC CTG GAT Leu Phe His Ile Phe Asp Gly Asp Asn Glu Ile Leu Gln Ile Val Asp 465	470	475	1440
GAG TTA TCT GAA GAT ATA ACT AAA TAT TTT ATG AAA CTA TAA Glu Leu Ser Glu Asp Ile Thr Lys Tyr Phe Met Lys Leu 485	490		1482

(2) INFORMATION FOR SEQ ID NO:46:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 12 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: DNA (genomic)
- (ix) FEATURE:
 - (A) NAME/KEY: CDS
 - (B) LOCATION: 1..12
- (x) PUBLICATION INFORMATION:
 - (H) DOCUMENT NUMBER: WO 92/13884
 - (J) PUBLICATION DATE: 20-AUG-1992

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

AAG GTT ATA TAT
Lys Val Ile Tyr
1